

SEP 17 1985



## Stauffer Chemical Company

Westport, Connecticut 06881/ Tel. (203) 222-3000/Cable "Staufferchem"

### Federal Express

September 16, 1985

Dennis Brennan, Esq.  
Morgan, Lewis & Bockius  
2001 Logan Square  
Philadelphia, PA 19109

George J. Weiner, Esq.  
Schmeltzer, Aptaker &  
Sheppard  
1800 Massachusetts Avenue  
Suite 500  
Washington, DC 20036

Re: Tybouts Corner - Remedial Proposal

Dear Dennis and George:

Enclosed is a copy of the revised groundwater monitoring proposal which should be delivered to EPA tomorrow, together with the cap and trench proposals.

I telecopied this document to Pam Maintner on Monday afternoon.

Sincerely,

Wendy J. Tisch  
Attorney - Law Department

WJT:sar  
Attachments

cc: J. Duffield - Federal Express  
J. Isbister - Federal Express  
D. Bickart  
J. E. Poff  
P. Roux - Federal Express  
J. D. Sheehan  
G. Sobel

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TYBOUTS CORNER LANDFILL  
GROUND-WATER REMEDIAL MEASURES  
OFF-SITE MONITORING PROGRAM

The NUS study has revealed organic compounds in ground water beyond the boundaries of the landfill in several wells tapping the Columbia aquifer and the underlying No. 1 Sand. The locations of these wells and the general direction of ground-water flow in the Columbia and No. 1 Sand are shown on attached Figure 1.

1. In view of the rate and direction of ground-water flow in the Columbia reported by NUS, it is likely that the contamination from the Columbia aquifer has been discharging into Red Lion Creek for a number of years. There is also some visible seepage of contamination to Red Lion Creek. The water and sediments in the creek have been sampled by NUS and no adverse impact on the creek is detectable. Accordingly, no remedy is warranted for the Columbia aquifer.

2. All of the impacted wells in the No. 1 Sand are within 500 feet of the landfill. Since the base of the landfill is in direct contact with ground water in the No. 1 Sand, contaminants would have entered this aquifer at the time the landfill opened. Therefore, the NUS data indicates that the contaminant plume in the No. 1 Sand has moved only about 500 feet in the 15-year period since the establishment of the landfill.

In view of the direction of ground-water flow in the No. 1 Sand, it is likely that Red Lion Creek would be the discharge area for contaminants in this unit. However, ground-water flow in the No. 1 Sand is very slow (30-60 feet per year, based on NUS measurements). Movement of contaminants in the No. 1 Sand is so slow that it will probably take another 15-30 years (based on the distance travelled to date as measured by NUS) for these contaminants to reach the creek, at which time they may discharge into the creek without detection. The slow rate of ground-water movement, the limited extent and relatively low levels of contamination, the relatively large flow of water in the creek and the natural attenuation of contaminants on aquifer sediments make it highly unlikely that contaminants will ever have an adverse impact on the creek. The conclusion which we reach based on the above facts is that there is insufficient data to justify implementation of any remedial action with respect to the No. 1 Sand.

3. Contaminants were found in the No. 2 Sand (which underlies the No. 1 Sand) only in one well and at very low concentrations. Other wells in the No. 2 Sand surrounding the landfill are not contaminated. There appears to be a continuous clay layer between the No. 1 and No. 2 Sands, although NUS believes that there may be areas of interconnection based on pumping test results. We believe that there is insufficient data to reach a conclusion on the level of contamination in the No. 2 Sand and whether

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remedial action is necessary. The appropriate measure, therefore, is to monitor the No. 2 Sand as outlined later in this proposal, and if data establishes contamination, identify appropriate remedial responses, if any, at that time.

4. In summary, the results of the RI/FS do not adequately support the selection at the present time of any long-term, direct groundwater remediation alternative. As recognized in the RI/FS itself, extensive additional field testing and design investigation would be required prior to implementing either of the "pump and treat" alternatives discussed therein. Given both the limited data and the need in any case for further testing prior to design, EPA should not at this stage select any option for groundwater remediation. Instead, it should adopt the monitoring program detailed below which would 1) monitor plume movement; 2) monitor the No. 2 sand; 3) monitor the impact of the start-up of Well OR-6A; and 4) monitor the effectiveness of Well OR-6A as an intercept system, if it is needed. (Part 1 of the plan addresses the first three objectives; Part 2 is designed to monitor the effectiveness of OR-6A as an intercept system if that system is needed).

This approach would serve two principal purposes. First, it would permit Texaco to begin production from its idle well OR-6A and thus make use of this aquifer rather than bring about the total restriction on access that would result from immediate implementation of any "pump and treat" options. Second, it would provide the data, which is

concededly lacking at this stage, necessary to gauge the long-term necessity for and effectiveness of any system of groundwater remediation.

Implementation: Part 1

The proposed monitoring program uses six existing well clusters (in the TY series) and requires the installation of one new well cluster. The locations of the seven proposed monitoring well clusters (with wells screened in the No. 1 Sand and No. 2 Sand) are shown in Figure 2. The new well cluster should be designated TY-122. The following wells should be monitored:

TY-116A	TY-119A
TY-116B	TY-119B
TY-116C	TY-120A
TY-117B	TY-120B
TY-118A	TY-121B
TY-118B	TY-122A
	TY-122B

These wells should be sampled twice a year for the following constituents:

bis (2-chloroethyl) ether  
1,2 - dichloroethane  
1,1 - dichloroethane  
methylene chloride  
chloroethane  
toluene  
benzene  
tetrachloroethylene  
trichloroethylene  
specific conductivity

These constituents were selected because (1) they have been found by NUS in high concentrations under the landfill; (2) they have been found in wells adjacent to the landfill (off-site); and (3) they are relatively mobile in an aquifer. If any of these compounds are detected and

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confirmed, a full priority pollutant scan would be run on a sample from that well.

If contaminants are detected in wells on the north side of Red Lion Creek, but not on the south side, the Creek should be monitored at three locations (upstream, adjacent to the landfill and downstream) at the same times the well are sampled and for the same constituents.

Part II. If contaminants are detected south of Red Lion Creek, then OR-6A may be used as an intercept system. This segment of the monitoring plan should be implemented to determine the effectiveness of OR-6A as an intercept system.

Four new monitoring well clusters (labelled MW1, MW2, MW3 and MW4) are proposed at the locations shown on attached Figure 3. These locations were chosen because if contaminants were to pass under the Creek and beyond OR-6A, they would move toward either the Delaware River to the east or Texaco pumping wells to the south. The proposed locations would monitor all southeasterly ground-water flow from the landfill and all southerly and easterly ground-water flow from the vicinity of OR-6A. Any contamination moving under Red Lion Creek from Tybouts Corner Landfill should be detected by one or more of these wells.

Each well cluster would consist of two individual wells, one screened at the geologic horizon identified as the No. 1 Sand and the other screened at the horizon identified as No. 2 Sand. That is, screen elevations would

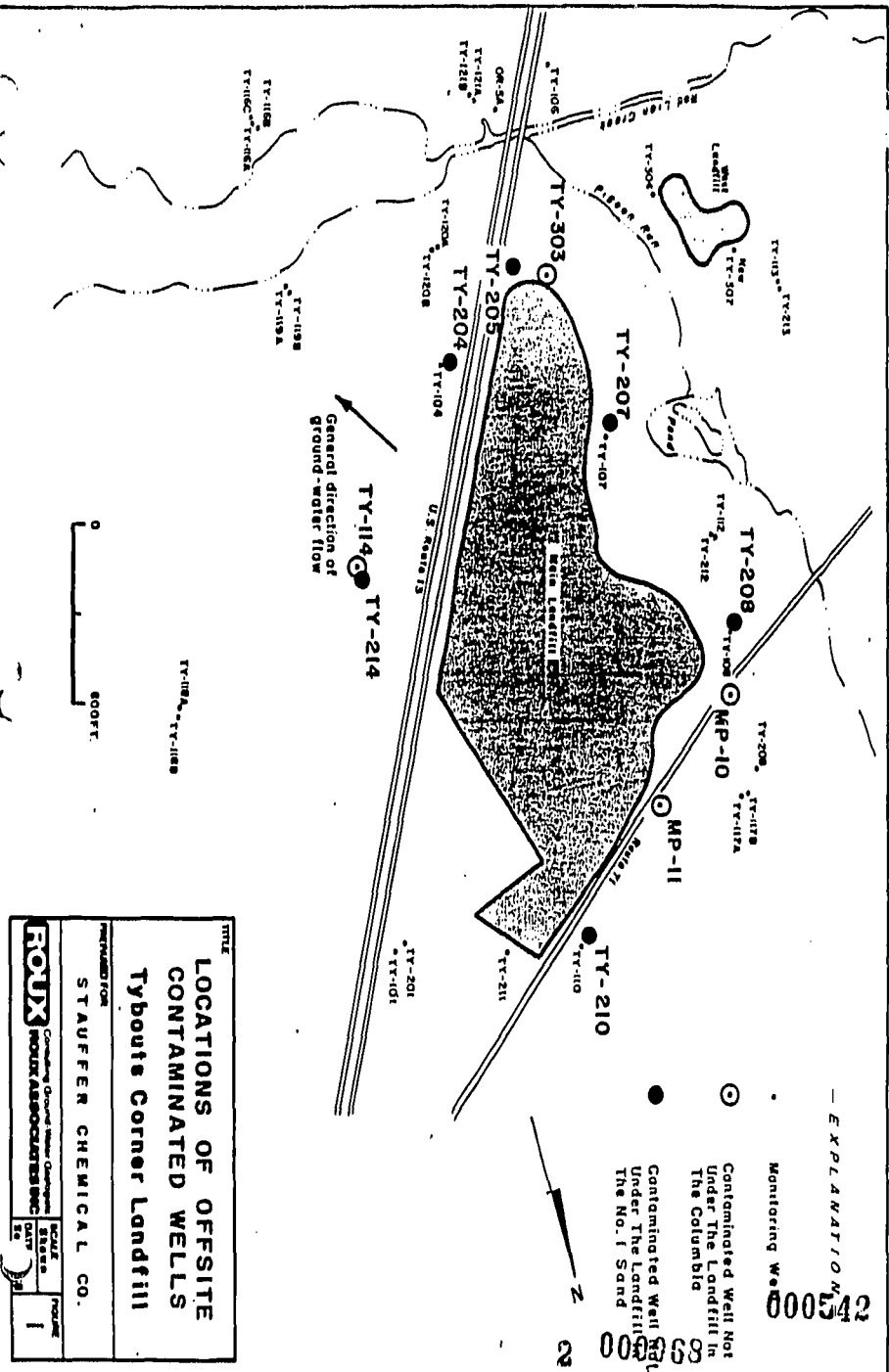
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be comparable to the elevations of screens in the TY series, although they would be adjusted as necessary to fit local geologic conditions.

The new monitoring wells, if they prove to be necessary, would be 4-inch diameter, PVC wells with 20-foot long screens. The construction and development would be the same as the TY-Series. The new monitoring wells would be purged and sampled in the same manner as the TY-Series. Constituents analyzed would be those detected south of Red Lion Creek or in the TY-Series wells directly north of the Creek. The wells would be sampled quarterly in lieu of the TY-Series wells.

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EXPLANATION

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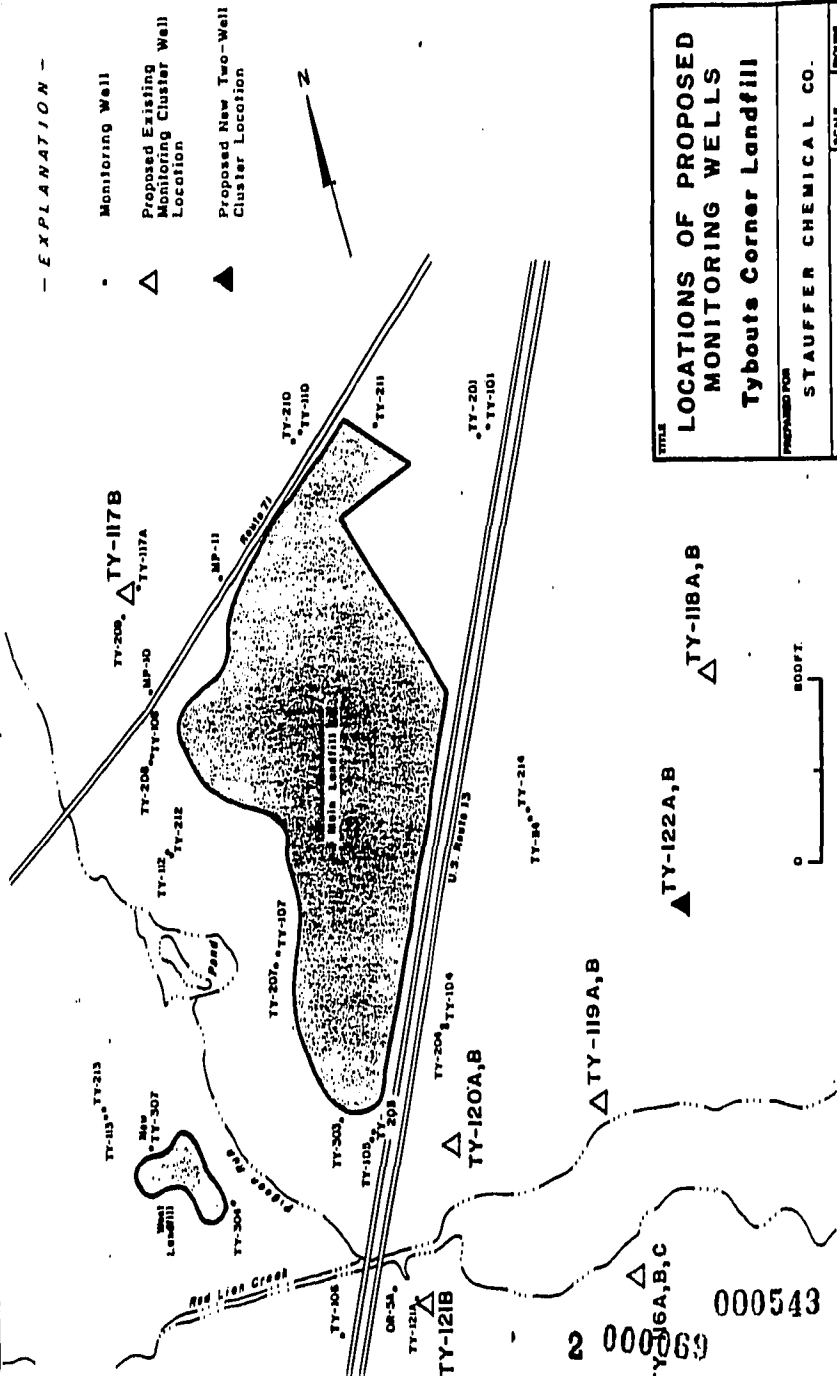
- Monitoring Well
- Contaminated Well Not Under The Landfill In The Columbia
- Contaminated Well Not Under The Landfill In The No. 1 Sand

TITLE	
LOCATIONS OF OFFSITE CONTAMINATED WELLS Tybout Corner Landfill	
PREPARED FOR	
STAUFFER CHEMICAL CO.	
FOURX	FOURX ASSOCIATES INC.
DATE	1



- EXPLANATION -

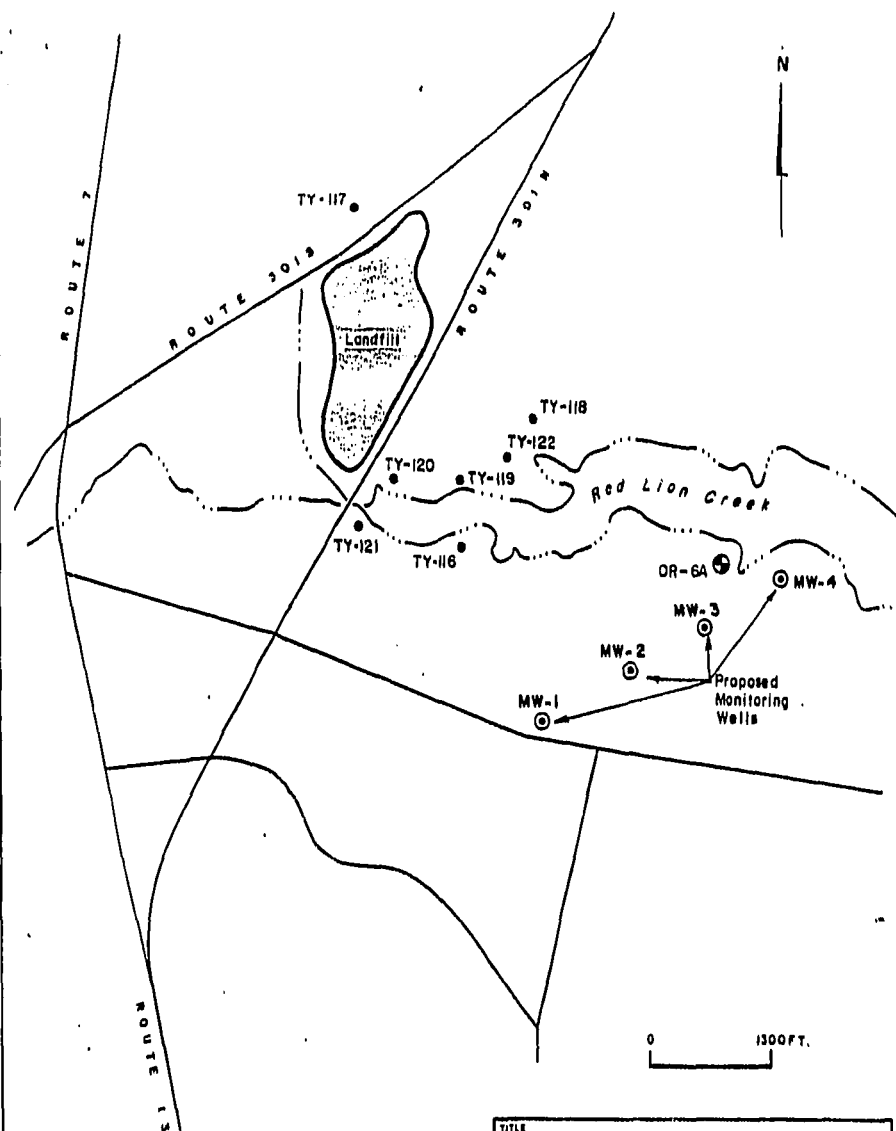
- Monitoring Well
- △ Proposed Existing Monitoring Cluster Well Location
- ▲ Proposed New Two-Well Cluster Location



<b>LOCATIONS OF PROPOSED MONITORING WELLS</b> <b>Tybouts Corner Landfill</b>	
PREPARED FOR <b>STAUFFER CHEMICAL CO.</b>	
SCALE 1" = 100'	SHEETS 2
DATE 10/1/83	

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<b>TITLE</b> LOCATIONS OF PROPOSED MW - SERIES MONITORING WELLS Tybouts Corner Landfill		
<b>PREPARED FOR</b> STAUFFER CHEMICAL CO.		
<b>ROUX</b> Consulting Ground-Water Geologists ROUX ASSOCIATES INC.	<b>SCALE</b> Shown <b>DATE</b> Sept. 1965	<b>FIGURE</b> 3

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